

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:	:
	:
David Kammer	: Attorney Ref.: PALM-3197
	:
Serial No.: 09/676,270	: Confirmation No.: 6725
	:
Filed: September 28, 2000	: Art Unit: 2686
	:
FOR: EFFICIENT DISCOVERY OF	: Examiner: Nghi H. Ly
DEVICES IN A BLUETOOTH	:
ENVIRONMENT	:

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

**APPEAL BRIEF**

This Appeal Brief is submitted in triplicate in response to the Final Office Action, dated June 13, 2005, the Advisory Action, dated November 7, 2005, the Supplemental Advisory Action, dated January 3, 2006, and in support of the Notice of Appeal, filed November 11, 2005.

I. **REAL PARTY IN INTEREST**

The real party in interest in this appeal is Palmsource, Inc.

II. **RELATED APPEALS AND INTERFERENCES**

Appellant is unaware of any related appeals or interferences.

### III. STATUS OF CLAIMS

Claims 1, 3-9 and 11-26 are pending in this application. Claims 2 and 10 have been canceled.

Claims 1, 3-8 and 18-26 have been finally rejected under 35 U.S.C. § 103(a) as being unpatentable over “Specification of the Bluetooth System, Wireless Connections Made Easy, Profiles” (“Bluetooth Specification”), in view of U.S. Patent No. 5,598,536 to Slaughter, III et al. (“Slaughter”) and further in view of U.S. Patent No. 6,026,445 to Kephart et al. (“Kephart”) and U.S. Patent No. 5,293,644 to Barry et al. (“Barry”).

Claims 9 and 11-17 have been finally rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Claims 1, 3-9 and 11-26 are the subject of the present appeal. These claims are reproduced in Appendix A of this Appeal Brief.

### IV. STATUS OF AMENDMENTS

A response including a request for reconsideration and a request for entry of a proposed amendment to claim 9 to address the rejection under 35 U.S.C § 112, first paragraph, was filed subsequent to the Final Office Action of June 13, 2005. In the supplemental Advisory Action of January 3, 2006, the Examiner indicated that the proposed amendment to claim 9 will be entered for purposes of appeal. No other claims were amended after the Final Office Action of June 13, 2005.

V. SUMMARY OF THE INVENTION

The present invention is related to a wireless communication device and a method for discovering a name of a responding device. The wireless communication device may include a bus, a wireless transceiver unit coupled to the bus for communicating with responding devices, a memory cache coupled to the bus, a processor coupled to the bus, and a display device (see specification, at page 23, lines 7-18, page 28, lines 19-22, Fig. 4 and Fig. 7A) .

In one embodiment, the wireless communication device may be an initiator device. The initiator device may broadcast a first wireless signal to a responding device, which may receive the wireless signal (see specification, at page 29, lines 10-11, page 33, lines 11-14, and 810 of Fig. 8). The responding device may send to the initiator device, in response to the first wireless signal, a second wireless signal, including an address of the responding device (see specification, at page 29, lines 11-16). The initiator device may receive the second wireless signal (see specification, at page 33, lines 17-21, and 820 of Fig. 8). The initiating device may send a wireless paging signal to the responding device and may receive a wireless paging response from the responding device (see specification, at page 34, lines 14-17, and 840 of Fig. 8). The initiator device may access a memory cache to determine whether the address for the responding device is included in the memory cache (see specification, at page 34, lines 1-3 and 830 of Fig. 8). The memory cache may have stored therein an entry for each one of a group of responding devices, including a name and an address (see specification, at page 28, line 20 through page 29, line 2, and Fig. 7B). If the memory cache does not include the address, indicating that the address and name of the responding device are not known to the initiator device, the initiator device may transmit a third wireless request for a name to the responding device (see

specification, at page 34, lines 14-15, and 840 of Fig. 8). In response to the third wireless request, the initiator device may receive the name of the responding device (see specification, at page 34, lines 19-21, and 850 of Fig. 8). The initiator device may then store the name received from the responding device in the memory cache and may index the name stored in the memory cache by the address received from the responding device (see specification, at page 35, lines 1-7, and 860 of Fig. 8). The stored name may be retrievable from the memory cache by using the address (see specification, at page 35, lines 9-11, and 870 of Fig. 8). Further, the name may be displayed on a display of the initiator device (see specification, at page 35, lines 13-15, and 880 of Fig. 8).

If the initiator device determines that the address of the responding device is already included in the memory cache, then the name of the responding device may be retrieved from the memory device by using the address of the responding device in lieu of performing a wireless request to the responding device for the name (see specification, at page 34, lines 1-4, and 830 and 870 of Fig. 8).

In some implementations consistent with the present invention, when a number of entries in the memory cache reaches a maximum amount, one of the entries in the memory cache may be removed according to an aging scheme that ranks entries according to frequency of use (see specification, at page 36, lines 10-17). In one implementation, when the name of the responding device is changed the responding device may supply a new name to the initiator device, which may update the memory cache (see specification, at page 35, line 19 through page 36, line 8, and 890 of Fig. 8).

The initiator device and the responding device may be Bluetooth-enabled devices (see

specification, at page 18, lines 12-14, and Fig. 2) and the initiator device may be a portable computer system (see specification, at page 18, lines 9-12, and Fig. 2).

#### VI. GROUPING OF CLAIMS

Appellant is satisfied to let claims 1-8 and 18-26 stand or fall together. Appellant elects claim 1 as representative of the group.

Appellant is also satisfied to let claims 9 and 11-17 stand or fall together. Appellant elects claim 9 as representative of the group.

#### VII. ISSUES

- A. Whether claims 1-8 and 18-26 are unpatentable under 35 U.S.C. § 103(a) over Bluetooth Specification in view of Slaughter (U.S. Patent No. 5,598,536), Kephart (U.S. Patent No. 6,026,445) and Barry (U.S. Patent No. 5,293,644); and
- B. Whether claims 9 and 11-17 are unpatentable under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

#### VIII. ARGUMENT

- A. **The rejection of claims 1-8 and 18-26 under 35 U.S.C. § 103(a) as being unpatentable over Bluetooth Specification in view of Slaughter (U.S. Patent No. 5,598,536), Kephart (U.S. Patent No. 6,026,445) and Barry (U.S. Patent No. 5,293,644) should be REVERSED.**

Claims 1-8 and 18-26 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Bluetooth Specification in view of Slaughter, Kephart and Barry.

As stated above with regard to the groupings of the claims, claim 1 is representative of the group of claims including claims 1-8 and 18-26.

The initial burden of establishing a prima facie basis to deny patentability to a claimed invention is always upon the Examiner. In re Oetiker, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In rejecting a claim under 35 U.S.C. § 103, the Examiner must provide a factual basis to support the conclusion of obviousness. In re Warner, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967). Based upon the objective evidence of record, the Examiner is required to make the factual inquiries mandated by Graham v. John Deere Co., 86 S.Ct. 684, 383 U.S. 1, 148 USPQ 459 (1966). The Examiner is also required to explain how and why one having ordinary skill in the art would have been led to modify an applied reference and/or combine applied references to arrive at the claimed invention. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988).

With these principals in mind, independent claim 1, from which claims 3-8 depend recites, in an initiator having a wireless transceiver, a method for discovering a name of a responding device. The method includes, among other things, determining whether a name for the responding device is present in a memory cache, transmitting a wireless request for a name to the responding device provided a name for the responding device is absent from the memory cache, receiving a name for the responding device in response to the wireless request, and storing the name received from the responding device in the memory cache, wherein the name is indexed in the memory cache using an address for the responding device and wherein the name is retrievable from the memory cache using the address.

Bluetooth Specification, at pages 37-41, discloses procedures by which Bluetooth devices

discover one another. The procedures result in a Bluetooth device receiving names and addresses of discoverable Bluetooth devices located nearby.

On page 3 of the Final Office Action of June 13, 2005, the Examiner argued that Slaughter, at col. 3, line 13 to col. 4, line 10, and col. 6, line 65 to col. 7, line 10, discloses a remote access server that permits remote users to access a local computer and includes using a user ID string, as entered by a user and communicated over a communication link or links to the remote server, which uses the user ID string to index a database and retrieve an Internet Protocol (IP) address associated with the user ID string.

The Examiner further indicated that it would be obvious to one of ordinary skill in the art to incorporate the indexing of a user ID with a stored address into the discovery process of the Bluetooth Specification in order to facilitate transparent access to the network by remote users. Appellant respectfully disagrees with the Examiner.

Appellant submits that the Bluetooth protocol was well-known to those of ordinary skill in the art at the time that the present application was filed in the U.S. Patent and Trademark Office. For example, U.S. Patent No. 6,069,588 to O'Neill, Jr. ("O'Neill"), which issued on May 30, 2000, discloses that the well known Bluetooth protocol defines a universal radio interface in the 2.45 GHz frequency band that enables wireless electronic devices to connect and communicate wirelessly via short-range, ad hoc networks (see O'Neill, Abstract, lines 2-24). A copy of the Abstract of O'Neill is included as Appendix B. Appellant further submits that one of ordinary skill in the art would understand that the Bluetooth discovery procedures, as described on pages 37-41 of Bluetooth Specification concern the short range wireless connection of electronic devices in an ad hoc network.

Due to the short range and wireless aspects of the Bluetooth protocol, other electronic devices that use the Bluetooth protocol (Bluetooth devices) may be moving within range and outside the range of other Bluetooth devices. One of ordinary skill in the art would understand that the purpose of the discovery procedures is for Bluetooth devices to be able to discover and connect with other Bluetooth devices in a changing networking environment in order to maintain an ad hoc network of Bluetooth devices. The Bluetooth protocol has nothing to do with a user accessing a network by using a user ID. Therefore, one of ordinary skill in the art would not be motivated to incorporate the indexing of a user ID with a stored address, as disclosed by Slaughter with the discovery process of Bluetooth Specification in order to facilitate the transparent access to a network by remote authorized users, as suggested by the Examiner on page 4 of the Final Office Action of June 13, 2005.

On page 4 of the Final Office Action of June 13, 2005, the Examiner admitted that the combination of Bluetooth Specification and Slaughter does not disclose determining whether a name for a responding device is present in a memory cache and transmitting a request for a name to the responding device provided a name for the responding device is absent from the memory cache, receiving a name for the responding device in response to a wireless request, and storing the name received from the responding device in the memory cache, wherein the name is indexed in the memory cache using an address for the responding device. The Examiner relied on Kephart, at Abstract, col. 2, lines 44-60, and col. 4, lines 27-39 to disclose this feature. Appellant respectfully disagrees.

The Abstract of Kephart discloses:

The present invention is a system, method, and computer readable medium for saving and reusing recently acquired Internet addresses. When a client computer



receives an Internet address for a particular computer name, the computer name and its corresponding Internet address are saved in a client memory area. Before sending a request to a name server, the client memory is checked to determine if the desired computer name and corresponding Internet address are stored in the client memory. If so, the stored Internet address is used to access the desired machine. If the desired computer name and corresponding Internet address are not stored in the client memory, the requested computer name is sent to the name server for conversion. The name server passes the Internet address back to the client, where it is used to access the machine, and is also stored in the client memory for future use. The client memory area may be configured such that each user has his or her own private memory area where only that user's name/address pairs are stored. In this case, name/address pairs are stored in individual user memory areas, rather than a client memory area. The present invention allows up-to-date Internet addresses to be obtained quickly and efficiently. Further, if a client determines that a name server is unavailable, the client may continue to use stored Internet addresses, and thus access desired computers, even though the name server is off line.

Kephart discloses saving an Internet address and a computer name when a client computer receives the Internet address. If a desired computer name and corresponding Internet address are not stored in the client computer memory, the client computer sends the computer name to a name server, which passes a corresponding Internet address back to the client computer. The client computer then uses the Internet address to access the computer corresponding to the computer name. Thus, the Abstract of Kephart discloses transmitting to a device a request for an address corresponding to a computer name when the name and corresponding Internet address are not stored in the computer memory. Appellant submits that this is quite different from transmitting a wireless request for a name to the responding device provided a name for the responding device is absent from the memory cache, as required by claim 1.

Kephart, at col. 2, lines 44-60, discloses:

Accordingly, the present invention is directed to a system, method, and computer readable medium for saving and reusing recently acquired Internet

addresses. When a client computer receives an Internet address for a particular computer name, the computer name and its corresponding Internet address are saved in a client memory area. Before sending a request to a name server, the client memory is checked to determine if the desired computer name and corresponding Internet address are stored in the client memory. If so, the stored Internet address is used to access the desired machine. If the desired computer name and corresponding Internet address are not stored in the client memory, the requested computer name is sent to the name server for conversion. The name server passes the Internet address back to the client, where it is used to access the machine, and is also stored in the client memory for future use.

The above-cited portion of Kephart discloses that if the computer name and corresponding Internet address are not stored in the computer memory, the computer name is sent to a name server for conversion to an address, which is passed back to the client computer to be used to access the device corresponding to the address. Again, Appellant submits that sending a name to a name server for conversion to an address is quite different from transmitting a wireless request for a name to the responding device provided a name for the responding device is absent from the memory cache, as required by claim 1.

Kephart, at col. 4, lines 27-39, discloses:

The present invention is a system and method for saving computer names, along with their corresponding Internet addresses, in client memory. Before sending a request to a name server, the client memory is checked to determine if the desired computer name and corresponding Internet address are stored in the client memory. If so, the stored Internet address is used to access the desired machine. If the desired computer name and corresponding Internet address are not stored in the client memory, the requested computer name is sent to the name server for conversion. The name server passes the Internet address back to the client, where it is used to access the machine, and is also stored in the client memory for future use.

The above-cited portion of Kephart discloses sending a name to a name server for conversion to an address. Appellant submits that this is very different from transmitting a wireless request for a name to the responding device provided a name for the responding device

is absent from the memory cache, as required by claim 1.

Barry discloses a method and apparatus that enables a radio frequency (RF) communication system to efficiently support subfleet calls for both voice and data communications (Barry, at col. 2, lines 25-28). Barry fails to disclose or suggest transmitting a wireless request for a name to the responding device provided a name for the responding device is absent from the memory cache, as required by claim 1.

For at least the reasons discussed above, Appellant submits that there is no motivation or suggestion to combine Slaughter with Bluetooth Specification, as suggested by the Examiner, and further, that Bluetooth Specification, Slaughter, Kephart and Barry, fail to disclose or suggest, either separately or in any combination transmitting a wireless request for a name to the responding device provided a name for the responding device is absent from the memory cache, as required by claim 1.

Independent claim 28 is similar to claim 1. As stated previously, Appellant elects claim 1 as representative of the group of claims that include claims 1, 3-8 and 18-26. Appellant submits that claim 18 is patentable over Bluetooth Specification, Slaughter, Kephart and Barry for at least similar reasons to those discussed above with respect to claim 1.

For at least the above reasons, Appellant respectfully requests that the rejection of claims 1, 3-8 and 18-26 be reversed.

To establish a *prima facie* case of obviousness, the Examiner must meet three criteria. First, there must be some motivation or suggestion, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to combine the references. Second, there must be a reasonable expectation of success, and finally, the prior art references

must teach or suggest all the claim limitations. The Examiner bears the initial burden of providing some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." MPEP 2142.

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Furthermore, if the examiner determines there is factual support for rejecting the claimed invention under 35 U.S.C. 103, the examiner must then consider any evidence supporting the patentability of the claimed invention, such as any evidence in the specification or any other evidence submitted by the applicant. The ultimate determination of patentability is based on the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). The legal standard of "a preponderance of evidence" requires the evidence to be more convincing than the evidence which is offered in opposition to it. With regard to rejections under 35 U.S.C. 103, the examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not. MPEP 2142.

The test for obviousness is what the combined teachings of the references would have

suggested to one of ordinary skill in the art, and all teachings in the prior art must be considered to the extent that they are in analogous arts. Where the teachings of two or more prior art references conflict, the examiner must weigh the power of each reference to suggest solutions to one of ordinary skill in the art, considering the degree to which one reference might accurately discredit another. *In re Young*, 927 F.2d 588, 18 USPQ2d 1089 (Fed. Cir. 1991). MPEP 2143.01.

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

**B. The rejection of claims 9 and 11-17 under 35 U.S.C. § 112, first paragraph, should be REVERSED.**

As stated previously, Appellant elects claim 9 as representative of the group of claims including claims 9 and 11-17.

Claims 9 and 11-17 stand finally rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. In particular, on page 2 of the Final Office Action of June 13, 2005, the Examiner indicated that the feature recited in the last line of claim 9, “using said name to retrieve said address from said memory cache” is not disclosed in the specification.

Appellant filed an amendment (on October 13, 2005) after the final rejection to amend claim 9. In the supplemental Advisory Action, which the Examiner faxed to Appellant’s representative on January 3, 2006, the Examiner indicated that the amendment filed after the final rejection will be entered for purposes of an Appeal. Appellant submits that the last line of

amended claim 9 recites, “using said address to retrieve said name from said memory cache.” Appellant agrees with the Examiner’s statement, on page 2 of the Final Office Action of June 13, 2005, that the specification at page 31, lines 15-17 of the present invention discloses that “if address information 750 is known, the corresponding user-friendly name 760 can be determined and retrieved from the memory cache 710.” Therefore, Appellant submits that claim 9, as amended, complies with the written description requirement and Appellant, therefore, respectfully requests that the rejection of claims 9 and dependent claims 11-17 be reversed.


IX. CONCLUSION

In view of the foregoing arguments, Appellant respectfully solicits the Honorable Board to reverse the Examiner’s rejection of claims 1, 3-8 and 18-26 under 35 U.S.C. § 103(a) and claims 9 and 11-17 under 35 U.S.C. § 112, first paragraph.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-3102 and please credit any excess fees to such deposit account.

Respectfully submitted,

Date: January 11, 2006

By: 

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APPENDIX A

1. In an initiator device having a wireless transceiver, a method for discovering a name of a responding device comprising:  
  
broadcasting a first wireless signal to be received by said responding device;  
  
receiving a second wireless signal from said responding device, said second wireless signal sent in response to said first wireless signal and comprising an address for said responding device;  
  
accessing a memory cache comprising names of devices;  
  
determining whether a name for said responding device is present in said memory cache;  
  
transmitting a wireless request for a name to said responding device provided a name for said responding device is absent from said memory cache;  
  
receiving a name for said responding device in response to said wireless request; and  
  
storing said name received from said responding device in said memory cache, wherein said name is indexed in said memory cache using said address for said responding device and wherein said name is retrievable from said memory cache using said address.
3. The method as recited in Claim 1 comprising:  
  
removing from said memory cache an entry for one of said devices when a total number of cache entries exceeds a predetermined limit, said entry comprising a name and an address.

4. The method as recited in Claim 3 wherein an entry is removed from said memory cache according to an aging scheme, wherein said aging scheme ranks entries according to frequency of use.

5. The method as recited in Claim 1 comprising:  
updating said memory cache when said name for said responding device is changed.

6. The method as recited in Claim 1 comprising:  
displaying said name on a display of said initiator device.

7. The method as recited in Claim 1 wherein said initiator device and said responding device are Bluetooth-enabled devices.

8. The method as recited in Claim 1 wherein said initiator device is a portable computer system.

9. In an initiator device having a wireless transceiver, a method for identifying a responding device by name comprising:  
broadcasting a first wireless signal to be received by said responding device;  
receiving a second wireless signal from said responding device, said second wireless signal sent in response to said first wireless signal and comprising an address for said responding device;



sending a wireless paging signal to said responding device;  
receiving from said responding device a response to said wireless paging signal;  
determining whether a name for said responding device is present in a memory cache of  
said initiator device;  
transmitting a wireless request for a name to said responding device provided a name for  
said responding device is absent from said memory cache;  
receiving a name for said responding device in response to said wireless request;  
storing said name and said address received from said responding device in said memory  
cache, said name indexed by said address; and  
using said address to retrieve said name from said memory cache.

11. The method as recited in Claim 9 comprising:  
displaying said name on a display of said initiator device.

12. The method as recited in Claim 9 comprising:  
updating said memory cache when said name for said responding device is changed.

13. The method as recited in Claim 9 further comprising:  
storing in said memory cache an entry for each of a plurality of other responding devices,  
said entry comprising a name and an address.

14. The method as recited in Claim 13 further comprising:  
removing from said memory cache an entry for one of said responding devices when a  
total number of cache entries exceeds a predetermined limit.
15. The method as recited in Claim 13 wherein an entry is removed from said  
memory cache according to an aging scheme, wherein said aging scheme ranks entries according  
to frequency of use.
16. The method as recited in Claim 9 wherein said initiator device and said  
responding device are Bluetooth-enabled devices.
17. The method as recited in Claim 9 wherein said initiator device is a portable  
computer system.
18. A wireless communication device comprising:  
a bus;  
a wireless transceiver unit coupled to said bus and for communicating with responding  
devices;  
a memory cache coupled to said bus; and  
a processor coupled to said bus, said processor for performing a method for identifying a  
responding device by name, said method comprising:  
broadcasting a first wireless signal to be received by said responding device;

receiving an address for said responding device in response to said first wireless signal;  
determining whether a name for said responding device is present in said memory cache;  
transmitting a first wireless request for a name to said responding device provided a name for said responding device is absent from said memory cache;  
receiving said name for said responding device in response to said first wireless request;  
storing said address and said name received from said responding device in said memory cache, said name indexed by said address; and  
retrieving said name from said memory cache to subsequently identify said responding device in lieu of performing a second wireless request after said first wireless request, wherein said name is retrieved from said memory cache using said address.

19. The wireless communication device of Claim 18 wherein said retrieving step comprises:

broadcasting a second wireless signal to be received by said responding device;  
receiving said address from said responding device in response to said second wireless signal; and  
retrieving from said memory cache said name corresponding to said address.

20. The wireless communication device of Claim 18 comprising:  
a display device for displaying said name obtained from said memory cache.
21. The wireless communication device of Claim 18 wherein said method comprises:  
updating said memory cache when said name for said responding device is changed.
22. The wireless communication device of Claim 18 wherein said storing step  
comprises:  
storing in said memory cache an entry for each of a plurality of responding devices, said  
entry comprising a name and an address.
23. The wireless communication device of Claim 22 wherein said storing step further  
comprises:  
removing from said memory cache an entry for one of said plurality of responding  
devices when a total number of cache entries exceeds a predetermined limit.
24. The wireless communication device of Claim 22 wherein an entry is removed  
from said memory cache according to an aging scheme, wherein said aging scheme ranks entries  
according to frequency of use.
25. The wireless communication device of Claim 18 wherein said wireless  
communication device and said responding device are Bluetooth-enabled devices.

26. The wireless communication device of Claim 18 wherein said wireless communication device is a portable computer system.

# APPENDIX B



US000369588A

**United States Patent** [19]  
**O'Neill, Jr.**

[11] **Patent Number:** **6,069,588**  
[45] **Date of Patent:** **May 30, 2000**

[54] **SYSTEMS AND METHODS FOR COAXIALLY COUPLING AN ANTENNA TO A RADIO/TELEPHONE THROUGH A WINDOW AND AMPLIFYING SIGNALS ADJACENT AND INSIDE THE WINDOW**

*Kinno, "System Temperature and Signal to Noise Ratio", Antennas, Second Edition, McGraw-Hill, 1988, pp. 782-787.*

[73] Inventor: Gregory A. O'Neill, Jr., Apex, N.C.  
[73] Assignee: Ericsson Inc., Research Triangle Park, N.C.

*Primary Examiner—Ian Ho*  
*Attorney, Agent, or Firm—Myers Bigel Sibley & Sajovec*

[121] Appl. No.: 09/248,434  
[122] Filed: Feb. 11, 1999

## ABSTRACT

[51] Int. Cl.<sup>7</sup> ..... H01Q 1/32  
[52] U.S. Cl. .... 343/713; 343/906  
[58] Field of Search ..... 343/711, 712, 343/713, 715, 906; 333/24 C; 455/89, 90, 5.1, 86

A through-the-window coaxial coupler coaxially couples radio frequency (RF) signals between the inside and outside surfaces of a window. The through-the-window coaxial coupler includes an inside portion that mounts on the inside surface of a window, and an outside portion that mounts on the outside surface of the window and couples to an outside antenna. An inside electronic package couples to the inside portion of the through-the-window coaxial coupler, and is located adjacent the inside portion and remote from a radiotelephone. The inside electronic package includes a receive amplifier that amplifies RF signals that are received from the outside antenna via the through-the-window coaxial coupler and that provides the RF signals so amplified to the radiotelephone. In another embodiment, the inside electronic package may include a wireless transceiver and that wirelessly transmits and receives signals to and from a radiotelephone. Thus, only power may need to be supplied to the electronic package, but signal and/or connections may be provided to the radiotelephone using wireless communications. One such wireless communications protocol that may be used is the well known "Bluetooth" protocol that defines a universal radio interface in the 2.45 GHz frequency band that enables wireless electronic devices to connect and communicate wirelessly via short-range, ad hoc networks.

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11 Claims, 5 Drawing Sheets

